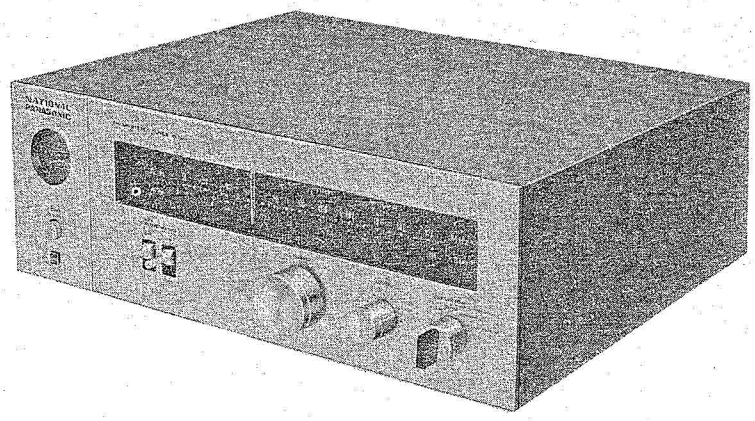
Service Manual

NATIONAL
HI-FI COMPONENTS
PANASONIC



FM/AM STEREO TUNER MODEL ST-3400

SPECIFICATIONS

(Specifications are subject to change without notice.)

FM TUNER SECTION

Frequency Range:		88 ~ 108 MHz
Intermedicate Frequency:		10.7 MHz
Usable Sensitivity (IHF):		1.7 μV
Signal to Noise Ratio:		70 dB
Capture Ratio (IHF):		1.5 dB
Selectivity, Alternate Channel:		65 dB
Image Rejection (at 98 MHz):		100 dB
IF Rejection (at 98 MHz):		100 dB
AM Suppression:		50 dB
Frequency Response:		40 Hz ~ 13 kHz, ±0.5 dB
Harmonic Distortion (at 400 Hz Mod. 100%):	Mono	0.3%
	Stereo	0.5%
Leak Carrier (at 400 Hz Mod. 100%):		50 dB
FM Stereo Separation:		40 dB (1 kHz)

AM TUNER SECTION

Frequency Range:	525 ~ 1605 kHz
Intermedicate Frequency:	455 kHz
Sensitivity (IHF):	15 μV
Selectivity (IHF):	30 dB
Signal to Noise Ratio:	40 dB
Image Rejection (at 1000 kHz):	100 dB
IF Rejection (at 1000 kHz):	80 dB

OUTPUT VOLTAGE

Fixed:	0.4 V
Variable:	0 ~ 1.8 V

GENERAL

Power Consumption:	17 W
AC Power Supply:	110/120/220/240 V (50/60 Hz)
Dimensions (including control knobs and AM ferrite bar antenna, W × H × D):	410 × 140 × 300 mm (16 5/16″ × 5 1/2″ × 11 13/16″)
Weight:	8.1 kg (18 lbs.)

TECHNISCHE DATEN (Änderungen vorbehalten)

(Erfüllt die Mindestanforderungen nach DIN 45 500)

UKW-TUNERTEIL

Antennenanschluß:		300 Ω (ausgeglichene) 75 Ω (unausgeglichene)
Empfangsbereich:		88 ~ 108 MHz
Zwischenfrequenz:		10.7 MHz
Empfindlichkeit:	Mono	1.7 μV, 30 dB Rauschabstand 1.6 μV, 26 dB Rauschabstand 1.4 μV, 20 dB Rauschabstand bei ±40 kHz Hub
Fremdspannungsabstand:		Mono 61 dB Stereo 48 dB bei ±40 kHz Hub
Gleichwellen-Selektion (Capture Ratio):		1.5 dB
Selektivität bei 400 kHz:		65 dB
Spiegel-Selektion:		100 dB
ZF-Festigkeit:		100 dB
AM-Unterdrückung:		50 dB
NF-Frequenzgang:		40 Hz ~ 13 kHz, ±0.5 dB
Klirrfaktor:		Mono 0.15% Stereo 0.2% bei ±40 kHz Hub
Pilotton-Unterdrückung:		−60 dB bei 19 kHz −71 dB bei 38 kHz
Stereo-Übersprechdämpfung:		40 dB bei 1000 Hz, ±40 kHz Hub
Begrenzung, Einsatzpunkt:		1.2 μV/−3 dB
Deemphasis:		50 μ sec
Auto Stereo Operation Level:		14 dB (3.2 μV)
Bandbreite	ZF-Verstärker:	440 kHz
	UKW-Demodulator:	585 kHz

AM-TUNERTEIL

Empfangsbereich:	525 ~ 1605 kHz
Zwischenfrequenz:	455 kHz
Empfindlichkeit:	15 μV
Selektivität:	30 dB
Spiegel-Selektion:	100 dB

ALLGEMEINE DATEN

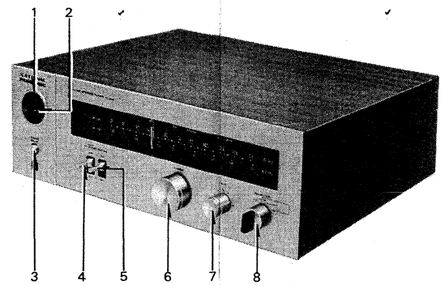
NF-Ausgangsspannung:	Fest 0.4 V Regelbar 0 ~ 1.8 V
Leistungaufnahme:	17 W
Netzspannung Umschaltbar:	110/120/220/240 V (50/60 Hz)
Abmessungen (über alles):	(B × H × T) 410 × 140 × 300 mm
Gewicht:	8.1 kg

MATSUSHITA ELECTRIC
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

ORDER NO. AD-008

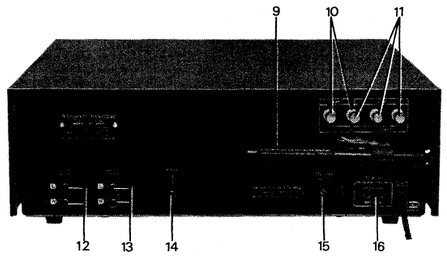
■ LOCATION OF CONTROLS

1. MULTI PATH & DISTORTION NULL METER
2. SIGNAL METER
3. POWER SOURCE SWITCH
4. MPX HI-BLEND SWITCH
5. MUTING SWITCH
6. TUNING CONTROL
7. OUTPUT LEVEL CONTROL
8. SELECTOR SWITCH



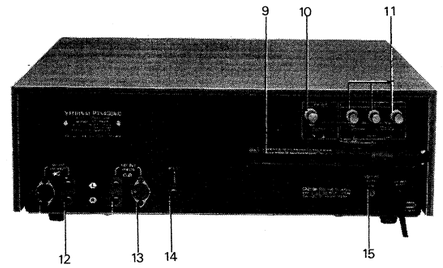
■ ANORDNUNG DER EINSTELLKNÖPFE

1. MULTI-PATH (MEHRWEG), UND VERZERRUNGS-NULL-MESSER
2. SIGNALSTÄRKEMESSER
3. NETZSCHALTER
4. MPX HI-BLEND SCHALTER
5. SCHALTER FUER STUMMABSTIMMUNG (MUTING)
6. ABSTIMMKNOPF
7. LAUTSTÄRKENREGLER
8. BEREICHSSCHALTER



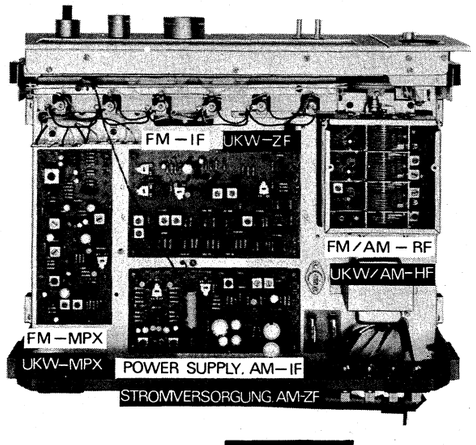
9. AM FERRITE CORE ANTENNA
10. AM ANTENNA TERMINAL
11. FM ANTENNA TERMINALS
12. OUTPUT TERMINAL (VARIABLE)
13. RECORDING OUTPUT TERMINAL (FIXED)
14. MPX OUTPUT TERMINAL
15. VOLTAGE SELECTOR SWITCH
16. AC OUTLET

Set for Germany



9. AM FERRITSTABANTENNE
10. AM ANTENNENANSCHLÜSS
11. FM ANTENNENANSCHLÜSS
12. AUSGANGSKLEMME (FEST)
13. AUSGANGSKLEMME (VARIABEL)
14. DEKODIERVERBINDUNGSANSCHLUSS
15. NETZEINSTELLUNG

■ LOCATION OF CIRCUIT BOARD
■ ANORDNUNG DER SCHALTPLATTE



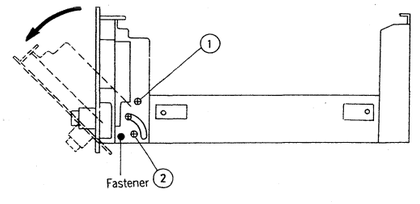
Top View **Draufsicht**

■ NOTE

1. Remove cabinet from chassis.
2. Remove four (4) front panel-mounting screws, nos. ① and ② (XTV3D8C). Then front panel can be moved in front of chassis.

■ BEMERKUNGEN

1. Gehäuse vom Chassis abnehmen.
2. Die vier (4) Frontpaneel-Befestigungsschrauben Nr. ① und ② entfernen. (XTV3D8C) Dann kann das Erreger-Druckkreisbrett vorn oder hinten abgesetzt werden.



ALIGNMENT INSTRUCTIONS ..... READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes:

1. Band selector switch ..... AM FM-Mono (FM-IF)
   FM-Auto (FM-RF)
2. Output level control ..... Minimum (AM-IF, FM-IF)
   Maximum (AM-RF, FM-RF)
3. Muting switch ..... OFF
4. MPX Hi-Blend switch ..... OFF
5. Maintain line voltage at rated voltage.
6. Output of signal generator and sweep generator should be no highter than necessary to obtain an output reading.
7. Use a distortion meter.

	SIGNAL GENERATOR or SWEEP GENERATOR		RCVR. DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTION	FREQUENCY				
	AM ALIGNMENT					
1	High side through 0.001 mfd to antenna terminal. Common to chassis.	455 kHz (20kHz Sweep)	Point of non-interference (on/about 600 kHz)	Connect vert. amp. of scope to **TP**301.	T_2 (1st IFT) (P) T_3 (1st IFT) (S) T_{301} (2nd IFT) (P) T_{302} (2nd IFT) (S) T_{303} (3rd IFT)	Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz (30% Mod. with 400Hz)	550 kHz [24.7mm (1 3/32")]	Connect meter to output terminals of set.	L_8 (OSC Coil) L_{501} (ANT Coil) T_7 (DET Coil)	Adjust for maximum output. Adjust L_{501} by ferrite core.
3	〃	1500 kHz (〃)	1500 kHz [192.8mm (7 19/32")]	〃	CT_7 (OSC Trimmer) CT_5 (ANT Trimmer) CT_6 (DET Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
	AM SIGNAL METER ALIGNMENT					
4	High side through 0.001 mfd to antenna terminal.	1500kHz (30% Mod. with 400Hz) output 74dB	1000 kHz	Signal meter of set.	VR316	Refer to fig. 1.
	FM-IF ALIGNMENT					
5	High side through 0.001 mfd to **TP**1.	10.7 MHz (400 kHz Sweep)	Point of non-interference (on/about 90 MHz)	Connect vert. amp. of scope through detector to **TP**104. Common to chassis. Refer to fig. 2.	T_1 (1st IFT) T_{101} (4th IFT)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. Refer to fig. 3.
6	〃	〃	〃	Connect vert. amp. of scope through detector to **TP**102. Common to chassis.	T_{102} (7th IFT) (P) T_{103} (7th IFT) (S)	〃
7	〃	〃	〃	Connect vert. amp. of scope through detector to **TP**103.	T_{104} (8th IFT) (P) T_{105} (8th IFT) (S)	〃
	MUTING and FM DETECTOR ALIGNMENT					
8	High side through 0.001 mfd to **TP**1.	10.7 MHz (400 kHz Sweep)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to **TP**101.	T_{106} (Muting 1st IFT) T_{107} (Muting 2nd IFT)	Adjust for maximum amplitude and proper linearity.
9	〃	〃	〃	Connect vert. amp. of scope to **TP**201.	T_{206} (9th IFT) (P) T_{207} (9th IFT) (S)	Adjust T_{206} and T_{207} so that 10.7MHz marker appears at the center. Refer to fig. 4.
	FM-RF ALIGNMENT					
10	Connect to FM antenna terminal through FM dummy antenna. Refer to fig. 5.	90 MHz (100% Mod. with 400 Hz)	90 MHz [26.8mm (1 1/16")]	Connect meter to output terminals of set.	L_6 (OSC Coil) L_1 (ANT Coil) L_3 (DET Coil) L_4 (DET Coil)	Adjust for maximum output.
11	〃	106MHz (〃)	106 MHz [181mm (7 1/8")]	〃	CT_4 (OSC Trimmer) CT_1 (ANT Trimmer) CT_2 (DET Trimmer) CT_3 (DET Trimmer)	Adjust for maximum output. Repeat steps (10) and (11).

Notes: Use six cornered screw driver for alignning FM OSC coil. (L_6)

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	RCVR. DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
	FM SIGNAL METER and MUTING LEVEL ALIGNMENT					
12	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) output 60dB	98 MHz	Signal meter of set.	VR158	Refer to fig. 6.
	Note: Muting switch ..... ON					
13	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) output 60dB	98 MHz	Connect output meter or speaker to output terminal.	VR159	Adjust so that output can be obtained.
	Note: Muting switch ..... OFF					
	DISTORTION NULL, MALTI PATH METER ALIGNMENT					
14	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) output 60dB	98 MHz	Connect VTVM between **TP**201 and **TP**202.	T_{207} (9th IFT) (S)	Make sure that VTVM become 0V.
				Distortion null meter of set.	VR203	Adjust for the best right position side the pointer of distortion null meter.
15	Nothing input signal				VR165	Refer to fig. 7.
16	Nothing input signal (Band selector switch to MALTI PATH)			Malti path meter of set.	VR164	Refer to fig. 8.
	FM-MONO DISTORTION ALIGNMENT					
17	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) output 60dB	98 MHz	Distortion meter across output terminal.	T_{206} (9th IFT) (P)	Adjust for minimum distortion.

FM STEREO ALIGNMENT

Notes:

Stereo-Modulator ..... Connect stereo-modulator output to EXT. MOD. terminal of signal generator. Inter OSC 1 kHz. Pilot signal modulation 10%.

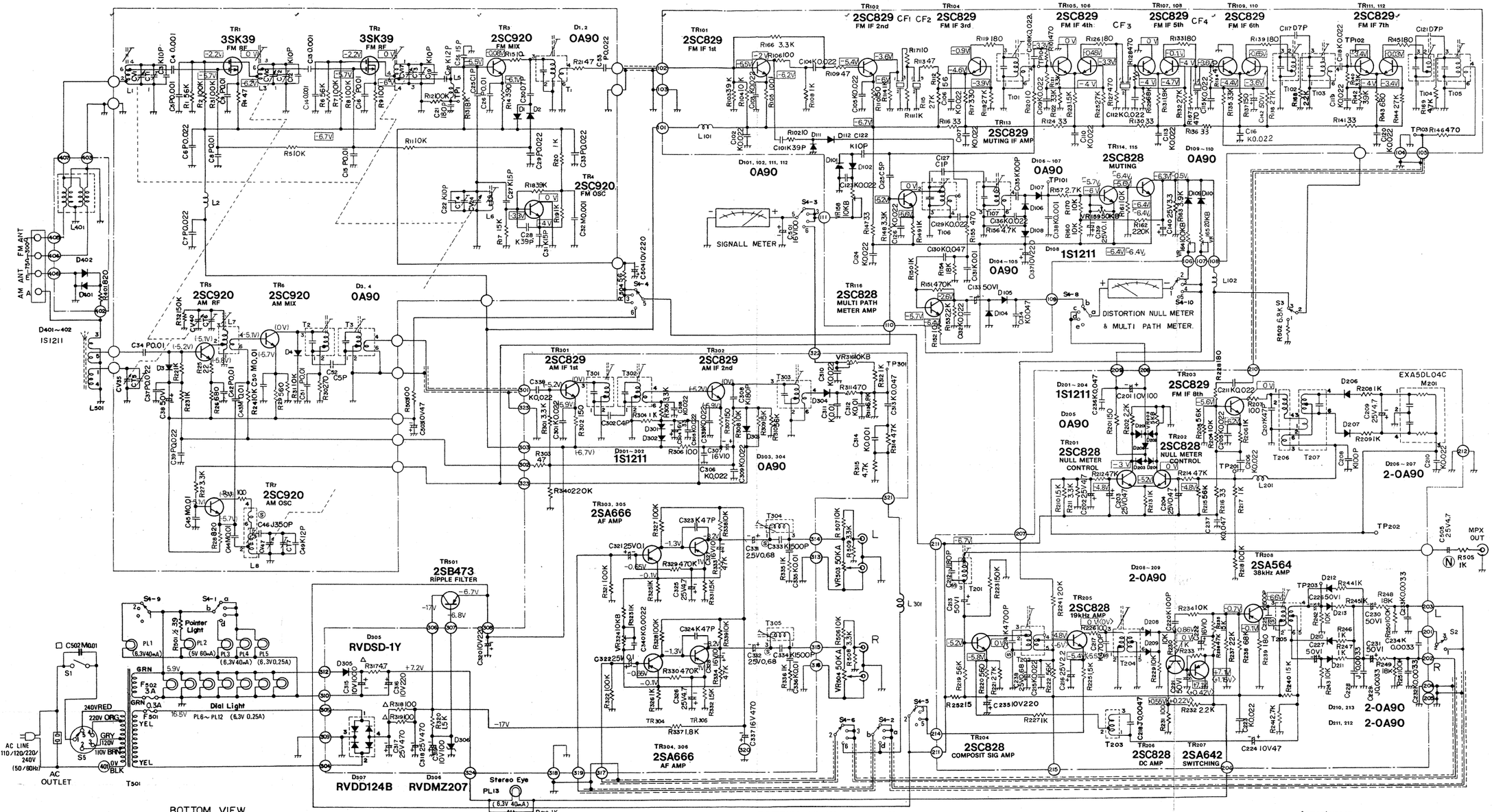
Signal generator ..... Frequency approximately 98 MHz. Output level 60 dB Modulation mode FM.

1. Band selector switch..... FM-Auto
   FM-Mono (SCA. 19 kHz 38 kHz Trap)
2. Maintain line voltage at rated voltage.

	SIGNAL GENERATOR CONNECTION	AF OSC FREQ. (MOD. RATE)	INDICATOR (VTVM and SCOPE)	ADJUSTMENT	REMARKS
	SCA, 19 kHz and 38 kHz TRAP ALIGNMENT				
18	FM antenna terminal through dummy antenna. (EXT. MOD.)	67 kHz (100%)	Output meter across output terminal of set.	T_{201} (SCA Trap Coil)	Adjust for minimum output.
19	〃	19 kHz (10%)	〃	T_{203} (19 kHz Trap Coil)	〃
20	〃	38 kHz (100%)	〃	T_{304} (38 kHz Trap Coil) Left T_{305} (38 kHz Trap Coil) Right	Adjust for minimum output. (Left and Right side)
	19 kHz AMPLIFIER and PHASE ALIGNMENT				
	SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE and MOD. RATE	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
21	FM antenna terminal thru. dummy antenna.	Pilot 10%	Connect scope to **TP**203, common to chassis.	T_{202} (19 kHz Pick-up Coil) T_{204} (19 kHz Doubler Coil) T_{205} (38 kHz Output Coil)	Adjust for maximum scope pattern.
22	〃	L (or R) 30%	Connect VTVM to output terminal of set.	T_{205} (38 kHz Output Coil)	Adjust for minimum right (or left) output.
	SEPARATION ALIGNMENT				
23	FM antenna terminal thru. dummy antenna.	L (and R) 30%	Output meter across output terminals of set.	VR324	Adjust for minimum right (and left) output.

Schematic Diagram Model ST-3400

(This schematic diagram may be modified with development of technology.)



Notes :

1. S1 Power source switch in "OFF" position
2. S2 MPX HI-BLEND switch in "OFF" position
3. S3 Muting switch in "ON" position
4. S4 Band selector switch in "MALTI PATH" position AM-FM AUTO-MONO-MALTI PATH
5. S5 Power source voltage selector switch in "240V" Position
6. DC voltage measurements are taken with VTVM from chassis ground.
   - [ ] ·····FM position
   - ( ) ·····FM stereo position
   - ( ) ·····AM position
   - ⌜ ⌟ ·····Muting "ON" position
7. All the capacitors otherwise noticed are ±10% (except electrolytic capacitors)

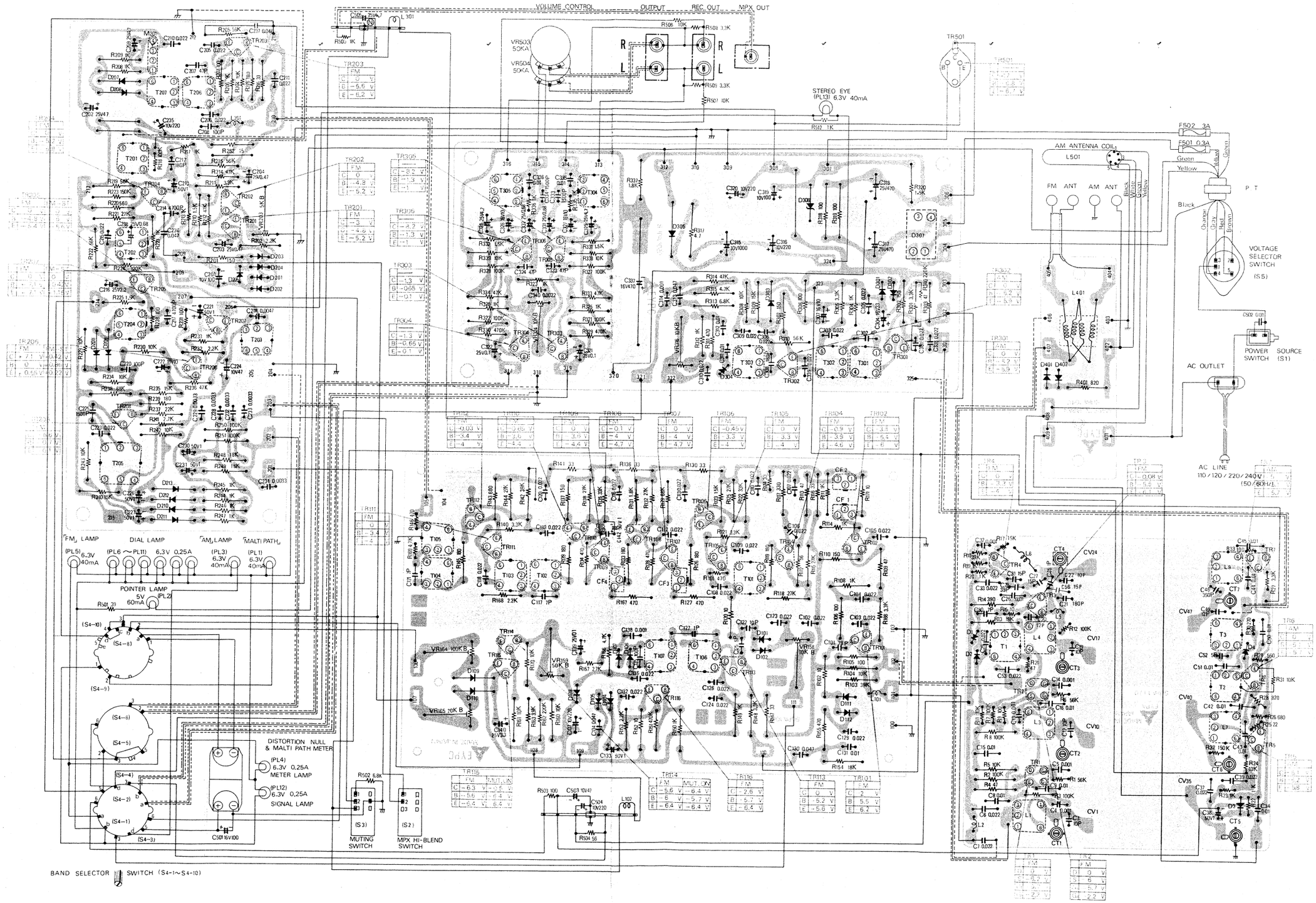
Ⓝ mark is non-polar capacitor

Anmerkungen :

1. S1 Netzschalter auf "OFF"
2. S2 MPX-HI BLEND-Schalter auf "OFF"
3. S3 MUTING-Schalter auf "ON"
4. S4 Bereichsschalter auf "MALTI PATH" AM-FM AUTO-MONO-MALTI PATH
5. S5 Netzwähler auf "240V"
6. Gleichspannungsmessungen erfolgen mit Röhrenvoltmeter in bezug auf Chassispotential.
   - [ ] ·····Einstellung FM
   - ( ) ·····Einstellung FM Stereo
   - ( ) ·····Einstellung AM
   - ⌜ ⌟ ·····Einstellung Muting-Schalter "ON"

Circuit Board Wiring View Model ST-3400

Earth Line ⊕ Line



■ FM-RF ALIGNMENT INSTRUCTIONS..... Set for Germany

ABGLEICHANWEISUNGEN.....VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN

Anmerkungen :

1. Bereichsschalter ..... FM-AUTO
2. Lautstärkenregler ..... Maximum
3. Dämpfschalter (Muting) ..... OFF
4. MPX Hi Blend-Schalter ..... OFF
5. Netzspannung auf Nennspannung halten.
6. Der Meßsenderausgang darf nicht höher sein als notwendig, um eine bequeme Ausgangsanzeige zu erhalten.

MESSENDER		SKALENZEIGER-EINSTELLUNG DES EMPFÄNGERS [ABSTAND]	ANGEIGE (RÖHRENVOLTMETER ODER OSZILLOGRAPH)	ABGLEICH	BEMERKUNGEN
SCHALTUNG	FREQUENZ				
FM HF-ABGLEICH					
Anschluß an den FM Antennenanschluß über die künstliche FM Antenne. (Vgl. Abb. 5)	87.5 MHz (100% Mod. bei 400Hz)	87.5 MHz [0mm]	Output meter über Ausgangsklemme.	L6 (Oszillatorspule)	Auf max. Ausgang abgleichen.
〃	90 MHz (〃)	90 MHz	〃	L1 (Antennenspule) L3 (Zwischenkreis) L4 (Zwischenkreis)	〃
〃	106 MHz (〃)	106 MHz [181mm]	〃	CT4 (OSZ. Trimmer) CT1 (ANT. Trimmer) CT2 (DET. Trimmer) CT3 (DET. Trimmer)	〃

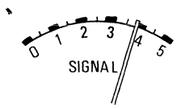


Fig. 1

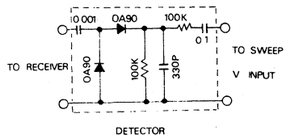


Fig. 2

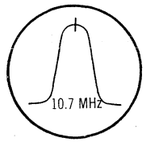


Fig. 3

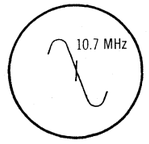


Fig. 4

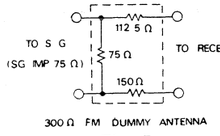


Fig. 5

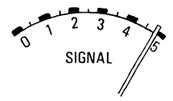


Fig. 6

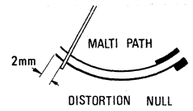


Fig. 7

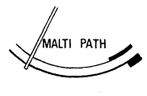
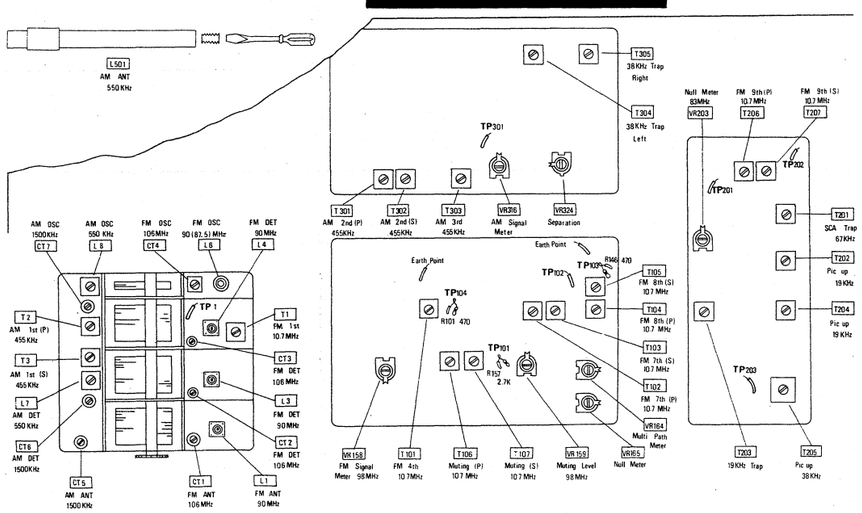


Fig. 8

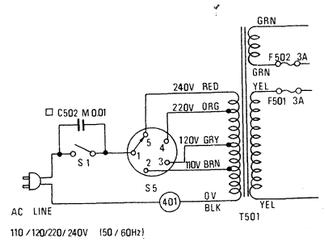
■ ALIGNMENT POINTS

■ ABGLEICHPUNKTE

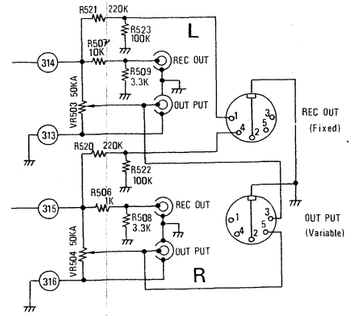


■ SCHEMATIC DIAGRAM FOR GERMANY

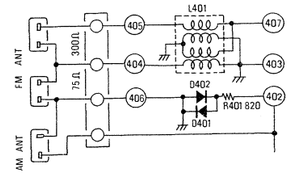
■ FÜR DEUTSCH SCHALTBILD



Stromversorgung



Ausgangsklemme



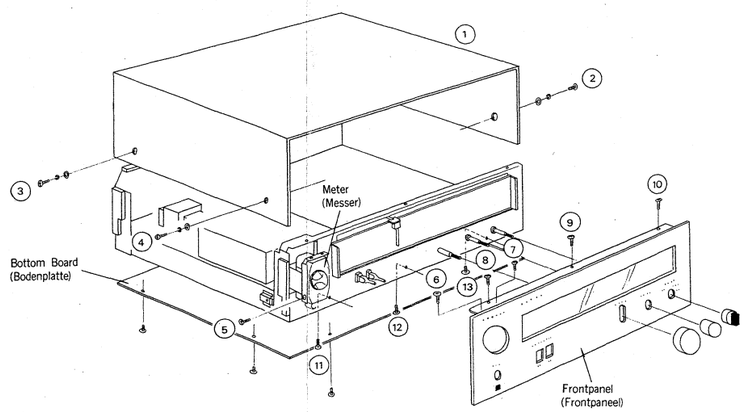
FM/AM Antennenanschlüß

■ TO REMOVE PANEL AND METER

1. Remove four (4) cabinet-mounting screws, nos. ① ~ ④, (XSB4+10KS)
2. Remove cabinet from chassis.
3. Remove eleven (11) red bottom board-mounting screws. (XTB4+8BR)
4. Remove bottom board from chassis.
5. To remove the front panel, three (3) control knobs from front view should be first removed.
6. Remove three (3) meter-mounting screws, nos. ⑤ (XTV3D6C) and ⑥, ⑦ (XSN3D8S)
7. Remove six (6) panel-mounting screws, nos. ⑧ ~ ⑩ (XSB3+6KS) and ⑪ ~ ⑬. (XSB3+8KS)
8. Remove meter and front panel from chassis.
9. To reassemble, reverse the above procedure.

■ ABNEHMEN DER FRONTPANEEL UND MESSGERÄT

1. Die vier (4) Gehäuse-Befestigungsschrauben Nr. ① ~ ④ entfernen. (XSB4+16BVCS)
2. Gehäuse vom Chassis abnehmen.
3. Die elf (11) rote Bodenplatte-Befestigungsschrauben. (XTB4+8BR)
4. Bodenplatte vom Chassis abnehmen.
5. Um das Paneel zu demontieren, Die drei (3) Einstellknöpfe von der Stirnseite abnehmen.
6. Die drei (3) Meßgerät-Befestigungsschrauben Nr. ⑤ (XTV3D6C) und ⑥, ⑦ entfernen. (XSN3D8S)
7. Die sechs (6) Frontpaneel-Befestigungsschrauben Nr. ⑧ ~ ⑩ (XSB3+6KS) und ⑪ ~ ⑬ entfernen. (XSB3+8KS)
8. Meßgerät und Frontpaneel vom Chassis abnehmen.
9. Beim Zusammenbau in umgekehrter Reihenfolge vorgehen.

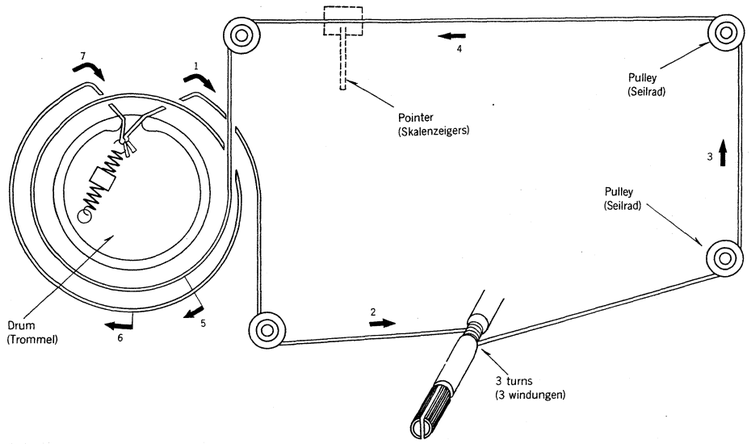


■ DIAL CORD INSTALLATION GUIDE

1. Dial cord length is 49 1/16″ (125cm).
2. Tuning gang is positioned at maximum capacity.

■ ANWEISUNG FÜR DAS AUFLEGEN DES SKALENSEILES

1. Skalenseil-Länge = 125cm.
2. Drehkondensator sollte für maximale Kapazität eingestellt sein.

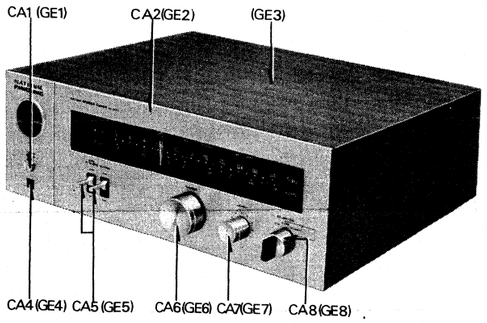


■ CABINET PARTS LOCATION

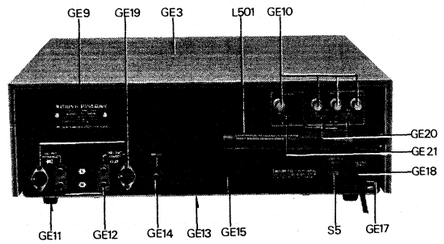
- Each unit destined for Germany is contained in a wooden case.

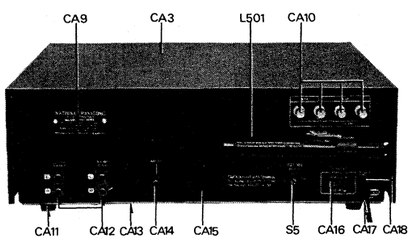
■ ANORDNUNG DER TEILE AM GEHÄUSE

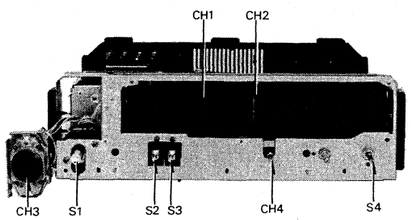
- Das nach Deutschland zu liefernde Gerät ist in die Holzkiste eingepackt.



Set for Germany







■ REPLACEMENT PARTS LIST

NOTES:

1. Part numbers are indicated on most mechanical parts. Please use this part number, for parts orders.
2. Ⓝ indicates the New Parts.
3. **A**～**C** rank **A** rank parts will cover 80% of repair needs. **A**+**B** rank parts will cover 95% of repair needs. **C** rank parts are less necessary.

Bemerkungen:

1. Die meisten mechanischen Teile sind mit Teilnummern versehen. Bitte geben Sie diese Nummern an, sofern die Teile keine Bezugsnummern haben.
2. Ⓝ bedeutet: Neue Teile.
3. Gruppen **A**～**C**: Teile der Gruppe **A** machen 80% des Ersatzteilbedarfes aus. Teile der Gruppen **A** und **B** machen 95% des Ersatzteilbedarfes aus. Teile der Gruppe **C** werden seltener benotigt.

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Ref. No. / Bezugs Nr.	Part No. / Teil Nr.	Description / Bezeichnung	Per Set (Pcs.) / Stückzahl pro Gerät	Remarks / Bemerkungen
TRANSISTORS AND DIODES TRANSISTOREN UND DIODEN				
TR1,2	3SK39Q	FM RF Amplifier	2	A
TR3,4,5,6,7	2SC920Q	FM Mix, Osc, AM RF Mix, Osc	5	A
TR101,102,104, 105,106,107, 108,109,110, 111,112,113, 203,301,302	2SC829C	FM IF 1st～8th Amp. Muting IF Amp. AM IF 1st, 2nd Amp.	15	A
TR114,115,116, 201,202,204 205,206	2SC828Q,R	Muting IF Amp. Multi Path Meter Null Meter Control Amp, MPX Amp.	8	A
TR207	2SA642S,W	Switching Amplifier	1	A
TR208	2SA564Q,R,S	38kHz Output Amplifier	1	A
TR303,304,305, 306	2SA666Q,R,S	AF Amplifier	4	A
TR501	2SB473-3,4	Ripple Filter	1	A
D1,2,3,4,101, 102,104,105, 106,107,109, 110,111,112, 205,303,304	OA90	AOC, Muting Detector, Meter Detector, AM Detector	17	A
D206,207,208 209,210,211, 212,213	2-OA90	Discriminator, 19kHz Doubler, MPX Switching	4 pair	A
D108,201,202, 203,204,301, 302,401,402	IS1211	AOC, Meter Control	9	A
D305	RVDSD-1Y	Rectifier	1	A
D306	RVDMZ207	Zener	1	A
D307	RVDD124B	Rectifier	1	A
COILS AND TRANSFORMERS SPULEN UND TRANSFORMATOREN				
L1	SLAA4N6-Z	FM Antenna Coil	1	Ⓝ A
L2,101,102,201	SLQX151-1Y	RFC	4	B
L3	SLDA4N6-Z	FM Detector Coil	1	Ⓝ A
L4	SLDA4N14-Z	FM Detector Coil	1	Ⓝ A
L5	RLQY15G5	RFC	1	Ⓝ B
L6	SLOA4N7-T	FM OSC Coil	1	A
L7	SLDA2C3	AM Detector Coil	1	Ⓝ A
L8	SLOA2C3	AM OSC Coil	1	Ⓝ A
L301	SLMAIX1-K	RFC	1	A
L401	SLAA4W1	Balun Coil	1	A
L501	SLFA2E9-0	AM Antenna Coil	1	A
T1	SLIA4C101	FM 1st IF Transformer	1	A
T2,3,301,302	RLI2C157-M	AM 1st, 2nd IF Transformer	4	A
T101,102,103, 104,105	SLIA4C23	FM 4th, 7th, 8th IF Transformer	5	A
T106	SLIA4C24	Muting 1st IF Transformer	1	A
T107	SLIA4C25	Muting 2nd IF Transformer	1	A
T201	SLMA1C1-K	SCA Trap Coil	1	A
T202,203	RLM1C4-K	19kHz Trap, Pick-up Coil	2	A
T204	RLM1C2-K	19kHz Doubler Coil	1	A
T205	SLMA1E11-K	38kHz Output Coil	1	A
T206	SLMA4C54	FM 9th IF Transformer	1	A
T207	SLMA4C56	FM 9th IF Transformer	1	A
T303	RLI2C450-M	AM 3rd IF Transformer	1	A
T304,305	RLM1C7-K	38kHz Trap Coil	2	A
T501	SLTA5M2	Power Transformer	1	Ⓝ A
CERAMIC FILTERS KERAMISCH FILTER				
CF1,2,3,4	RVFCF10P12CG, B,R,W,Y	FM 3rd, 5th, 6th IF Ceramic Filter	4	Ⓝ A
RESISTORS WIDERSTÄNDE				
R102,120,152, 171	ERD14TJ100	10ohm, 1/4W, ±5%, Carbon	4	B
R116,130,136, 141,147,216	ERD14TJ330	33ohm, 1/4W, ±5%, Carbon	6	B
R4,109,113 303	ERD14TJ470	47ohm, 1/4W, ±5%, Carbon	4	B
R14	ERD14TJ391	390ohm, 1/4W, ±5%, Carbon	1	B
R252	ERD14TJ150	15ohm, 1/4W, ±5%, Carbon	1	B
R105,106,207, 306,503,33	ERD14TJ101	100ohm, 1/4W, ±5%, Carbon	6	B
R110,137,201, 302,307	ERD14TJ151	150ohm, 1/4W, ±5%, Carbon	5	B
R119,126,133, 139,145,228 239	ERD14TJ181	180ohm, 1/4W, ±5%, Carbon	7	B
R101,127,128, 134,146,167, 155,311	ERD14TJ471	470ohm, 1/4W, ±5%, Carbon	8	B
R220	ERD14TJ561	560ohm, 1/4W, ±5%, Carbon	1	B
R143	ERD14TJ681	680ohm, 1/4W, ±5%, Carbon	1	B
R401	ERD14TJ821	820ohm, 1/4W, ±5%, Carbon	1	B
R117	ERD14TJ331	330ohm, 1/4W, ±5%, Carbon	1	B
R112,504	ERD14TJ560	56ohm, 1/4W, ±5%, Carbon	2	B
R108,111,114, 149,150,206, 208,209,213, 227,233,244, 245,246,247, 304,312,323, 325,326,505, 512	ERD14TJ102	1Kohm, 1/4W, ±5%, Carbon	22	B
R123,210,225, 320,331,332	ERD14TJ152	1.5Kohm, 1/4W, ±5%, Carbon	6	B
R131,337	ERD14TJ182	1.8Kohm, 1/4W, ±5%, Carbon	2	B
R153,168,202, 232	ERD14TJ222	2.2Kohm, 1/4W, ±5%, Carbon	4	B
R157,241	ERD14TJ272	2.7Kohm, 1/4W, ±5%, Carbon	2	B
R121,140,148, 166,211,301, 305,508,509	ERD14TJ332	3.3Kohm, 1/4W, ±5%, Carbon	9	B
R163	ERD14TJ392	3.9Kohm, 1/4W, ±5%, Carbon	1	B
R156,315	ERD14TJ472	4.7Kohm, 1/4W, ±5%, Carbon	2	B
R313,502	ERD14TJ682	6.8Kohm, 1/4W, ±5%, Carbon	2	B
R5,31,104,161, 160,170,204, 229,230,234, 242,243,308, 338,339, 506,507	ERD14TJ103	10Kohm, 1/4W, ±5%, Carbon	17	B
R240,235,309	ERD14TJ153	15Kohm, 1/4W, ±5%, Carbon	3	B
R13,154,248, 249	ERD14TJ183	18Kohm, 1/4W, ±5%, Carbon	4	B
R237	ERD14TJ223	22Kohm, 1/4W, ±5%, Carbon	1	B
R115,125,118, 132,138,144, 221	ERD14TJ273	27Kohm, 1/4W, ±5%, Carbon	7	B
R122,135	ERD14TJ333	33Kohm, 1/4W, ±5%, Carbon	2	B
R103,142	ERD14TJ393	39Kohm, 1/4W, ±5%, Carbon	2	B
R212,214,236, 314,333,334	ERD14TJ473	47Kohm, 1/4W, ±5%, Carbon	6	B
R205,215,219, 310,222	ERD14TJ563	56Kohm, 1/4W, ±5%, Carbon	5	B
R129,238	ERD14TJ683	68Kohm, 1/4W, ±5%, Carbon	2	B
R2,8,250,251, 321,322,327, 328,522,523	ERD14TJ104	100Kohm, 1/4W, ±5%, Carbon	10	B
R224	ERD14TJ124	120Kohm, 1/4W, ±5%, Carbon	1	B
R223	ERD14TJ154	150Kohm, 1/4W, ±5%, Carbon	1	B
R162,340,520, 521	ERD14TJ224	220Kohm, 1/4W, ±5%, Carbon	4	B
R151,329,330	ERD14TJ474	470Kohm, 1/4W, ±5%, Carbon	3	B
R15	ERD14VJ100	10ohm, 1/4W, ±5%, Carbon	1	Ⓝ B
R25	ERD14VJ220	22ohm, 1/4W, ±5%, Carbon	1	B
R124	ERD14VJ330	33ohm, 1/4W, ±5%, Carbon	1	Ⓝ B
R21	ERD14VJ470	47ohm, 1/4W, ±5%, Carbon	1	B
R9, 231,226	ERD14VJ101	100ohm, 1/4W, ±5%, Carbon	3	B
R30	ERD14VJ271	270ohm, 1/4W, ±5%, Carbon	1	B
R29	ERD14VJ561	560ohm, 1/4W, ±5%, Carbon	1	B
R26	ERD14VJ681	680ohm, 1/4W, ±5%, Carbon	1	B

Ref. No. / Bezugs Nr.	Part No. / Teil Nr.	Description / Bezeichnung	Per Set (Pcs.) / Stückzahl pro Gerät	Remarks / Bemerkungen
R28	ERD14VJ821	820ohm, 1/4W, ± 5%, Carbon	1	B
R19,23,217,20 22 335,336	ERD14VJ102	1Kohm, 1/4W, ±5%, Carbon	7	B
R27	ERD14VJ332	3.3Kohm, 1/4W, ± 5%, Carbon	1	B
R169	ERD14VJ472	4.7Kohm, 1/4W, ± 5%, Carbon	1	B
R11,24	ERD14VJ103	10Kohm, 1/4W, ± 5%, Carbon	2	B
R17	ERD14VJ153	15Kohm, 1/4W, ± 5%, Carbon	1	B
R18	ERD14VJ393	39Kohm, 1/4W, ± 5%, Carbon	1	B
R1,6	ERD14VJ563	56Kohm, 1/4W, ± 5%, Carbon	2	B
R3,7,12,218	ERD14VJ104	100Kohm, 1/4W, ± 5%, Carbon	4	B
R32	ERD14VJ154	150Kohm, 1/4W, ± 5%, Carbon	1	B
R318,319	ERD12TK101	100ohm, 1/2W, ±10%, Carbon	2	B
R317	ERD12TJ4R7	4.7ohm, 1/2W, ± 5%, Carbon	1	B
R501	ERD12TK390	39 ohm, 1/2W, ± 10%, Carbon	1	B
VARIABLE RESISTORS EINSTELL WIDERSTÄNDE				
VR158,316,324	EVLS3AA00B14	FM, AM Signal Meter Adjustment, Separation Adjustment 10Kohm (B)	3	A
VR159	EVLS3AA00B54	Muting Level Adjustment 50Kohm (B)	1	A
VR164	EVLS3AA00B15	Malti Path Meter Adjustment 100Kohm (B)	1	A
VR165	EVLS3AA00B24	Distortion Null Meter Adj. 20Kohm (B)	1	A
VR203	EVLS3AA00B53	Distortion Null Meter Adj. 5Kohm (B)	1	A
VR503,504	EVFKVAL30A54	Output Level Control 50Kohm (A)	1	A
CAPACITORS KONDENSATOREN				
C5,14,4,13	ECKD05102P	0.001mfd, 50WV, $^{+100}_{-0}$%, Ceramic	4	C
C32	ECKE05102MY	0.001mfd, 50WV, ± 20%, Ceramic	1	C
C8,9,15,16,26, 34,42,51	ECKE05103P	0.01mfd, 50WV, $^{100}_{-0}$%, Ceramic	8	C
C43,44,45,50	ECKE05103MY	0.01mfd, 50WV, ± 20%, Ceramic	4	C
C6,7,29,33, 37, 39,53	ECKE05223P	0.022mfd, 50WV, $^{+100}_{-0}$ %, Cerami c	7	C
C25,127	ECCD05010CC	1mmf, 50WV, ±0.25mmf, Ceramic	2	C
C302	ECCD05040CC	4mmf, 50WV, ±0.25mmf, Ceramic	1	C
C52,125	ECCD05050CC	5mmf, 50WV, ±0.25mmf, Ceramic	2	C
C30,117,121	ECCD05070DC	7mmf, 50WV, ±0.5mmf, Ceramic	3	C
C3,12,19,122	ECCD05100KC	10mmf, 50WV, ±10%, Ceramic	4	C
C22	ECCD05100KU	10mmf, 50WV, ±10%, Ceramic	1	C
C49,20	ECCD05120KC	12mmf, 50WV, ±10%, Ceramic	2	C
C27,31,56	ECCD05150KC	15mmf, 50WV, ±10%, Ceramic	3	C
C101,28	ECCD05390KC	39mmf, 50WV, ±10%, Ceramic	2	C
C207	ECCD05470KU	47mmf, 50WV, ±10%, Ceramic	1	C
C323,324	ECCD05470K	47mmf, 50WV, ±10%, Ceramic	2	C
C135,208 220	ECCD05101K	100mmf, 50WV, ±10%, Ceramic	3	C
C21,308	ECCD05181K	180mmf, 50WV, ±10%, Ceramic	2	C
C138,314	ECQG05102KZN	0.001mfd, 50WV, ±10%, Polyester	2	C
C338	ECQG05222KZN	0.0022mfd, 50WV, ±10%, Polyester	1	C
C232,233,234, 228,229	ECQG05332KZN	0.0033mfd, 50WV, ±10%, Polyester	5	C
C218	ECQG05472KZN	0.0047mfd, 50WV, ±10%, Polyester	1	C
C131,311,312, 335,336	ECQG05103KZN	0.01mfd, 50WV, ±10%, Polyester	5	C
C102,103,104, 105,106,107, 108,109,110, 112,113,115, 116,118,119, 120,123,124, 126,129,132, 136, 205,206, 210, 211,215, 223,301,303, 305,306,309, 310,338,339	ECQG05223KZN	0.022mfd, 50WV, ±10%, Polyester	36	C
C130,134,236, 237,313	ECQG05473KZN	0.047mfd, 50WV, ±10%, Polyester	5	C
C212	ECQS1181JZ	180mmf, 125WV, ± 5%, Styrol	1	C
C46	ECQS1351JZ	350mmf, 125WV, ± 5%, Styrol	1	C
C333,334	ECQS1152KZ	1500mmf, 125WV, ±10%, Styrol	2	C
C225	ECQS1152KZ-K	1500mmf, 125WV, ±10%, Styrol	1	C
C214,217	ECQS1472KZ-K	4700mmf, 125WV, ±10%, Styrol	2	C
C139,321,322	ECAG25ER1	0.1mfd, 25WV, Electrolytic	3	B
C203,204	ECAG25ER47	0.47mfd, 25WV, Electrolytic	2	B
C238,331,332	ECAG25ER68	0.68mfd, 25WV, Electrolytic	3	B
C216	ECSZ25EF2R2	2.2mfd, 25WV, Electrolytic	1	B
C224,503	ECEA10V47	47mfd, 10WV, Electrolytic	2	B
C201,319	ECEA10V100	100mfd, 10WV, Electrolytic	2	B
C137,235,316, 320,504	ECEA10V220	220mfd, 10WV, Electrolytic	5	B
C315	ECEA10V1000	1000mfd, 10WV, Electrolytic	1	B
C222,307,327, 328	ECEA16V10	10mfd, 16WV, Electrolytic	4	B
C304	ECEA16V33	33mfd, 16WV, Electrolytic	1	B
C501	ECEA16V100	100mfd, 16WV, Electrolytic	1	B
C140	ECEA25V3R3	3.3mfd, 25WV, Electrolytic	1	B
C202,209,325, 326	ECEA25V4R7	4.7mfd, 25WV, Electrolytic	4	B
C505	ECEA25N4R7	4.7mfd, 25WV, Electrolytic	1	B
C317,318	ECEA25V470	470mfd, 25WV, Electrolytic	2	B
C38,133,142, 213,221,226, 227,230,231	ECEA50V1	1mfd, 50WV, Electrolytic	9	B
C337	ECEB16V470	470mfd, 16WV, Electrolytic	1	B
C502	ECNU4A103M	0.01mfd, 400WV, ±20%, Paper	1	C
VARIABLE CAPACITORS EINSTELL KONDENSATOREN				
CV1,10,17,24, 35,40,47	ECV7PN34P12G	FM/AM Tuning Gang	1	Ⓝ A
CT1,4,5	ECV1ZW10P12	Trimmer, FM ANT, OSC, AM ANT	3	A
CT2,3	ECV1ZW10P50	Trimmer, FM DET	2	Ⓝ A
CT6,7	ECV1ZW20P12	Trimmer, AM DET, OSC	2	A
LIGHTS AND FUSES LEICHT UND SICHERUNG				
PL1,3,5,13	XAMR10T150	Indicator Light, Stereo Eye (6.3V 40mA)	4	A
PL2	XAMR18K380	Dial Pointer Light (5V 60mA)	1	Ⓝ A
PL4,6,7,8,9, 10,11,12	XAM35K	Dial Light, Meter Light (6.3V 0.25A)	8	A
F501	XBAS1B0302	Fuse 0.3A	1	A
F502	XBA1E30NR5	Fuse 3A	1	A
COMPONENT COMBINATION KOMPONENTE KOMBINATION				
M201	EXA5DL04C	FM Detector Circuit	1	B
SWITCHES SCHALTER				
S1	SSHA15S	Power Source Switch	1	A
S2,3	SSLA7S	High Blend, Muting Switch	2	A
S4	SSRA11	Band Selector Switch	1	B
S5	SSRA8	Voltage Selector Switch	1	B
CABINETS GEHAUSE				
CA1 (GE1)	SBCA34	Knob, Power Source Switch	1	Ⓝ A
CA2 (GE2)	SYEA18	Panel (Complete)	1	Ⓝ C
CA3	SKAA360	Cabinet	1	Ⓝ B
(GE3)	SKAA400	Holzgehäuse	1	Ⓝ B
CA4 (GE4)	SGBA30	Badge	1	C
CA5 (GE5)	SBNA61	Knob, High Blend, Muting Switch	2	A
CA6 (GE6)	SBNA63	Knob, Tuning	1	Ⓝ A
CA7 (GE7)	SBNA59-1	Knob, Output Level Control	1	A
CA8 (GE8)	SBNA58	Knob, Band Selector Switch	1	A
CA9 (GE9)	SGTA910	Name Plate	1	Ⓝ C
CA10 (GE10)	SMAA10-1S	FM AM Antenna Terminal	4	B
	SMXA31	Spacer, [Gray]	4	C
CA11 (GE11)	SHRA202	Leg	4	C
CA12 (GE12)	SJFA3203	Rec Out, Output Terminal	2	B
CA13 (GE13)	SKUA210	Bottom Board	1	Ⓝ C
CA14 (GE14)	RJF3109	MPX Output Terminal	1	Ⓝ B
CA15	SGPA31A	Rear Panel	1	Ⓝ B
(GE15)	SGPA110A	Rückwand	1	Ⓝ B
CA16 ★	SJSA9204	AC Outlet	1	C
CA17	RJA30	AC Cord, Power Source	1	B
(GE17)	SJAA3	AC Netzkabel	1	B
CA18 (GE18)	RHR111	Bushing, AC Cord	1	C
★ (GE19)	RJS31-1	Diodenbuchse	2	B
★ (GE20)	SJSA6202	Steckdose für FM Außenantenne	2	B
★ (GE21)	SJSA6201	Steckdose für AM Außenantenne	1	B
	XSB4+10KS	Screw, (Metal Cabinet M'tg.)	4	C
	XSB4+16BVCS	Screw, (Wooden Cabinet M'tg.)	4	C
	XTB4+8BR	Red Screw, Bottom Board M'tg.	11	C
CHASSIS CHASSIS				
CH1	SKDA233	Dial Scale	1	Ⓝ B
CH2	SDPA1010	Dial Pointer (Complete)	1	Ⓝ B
CH3	SSMA12	Meter	1	Ⓝ A

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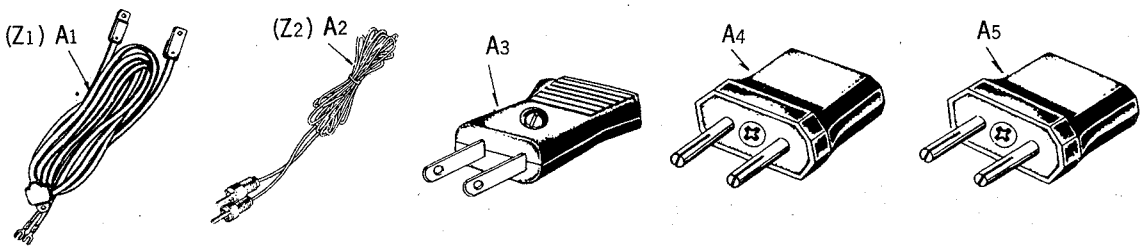
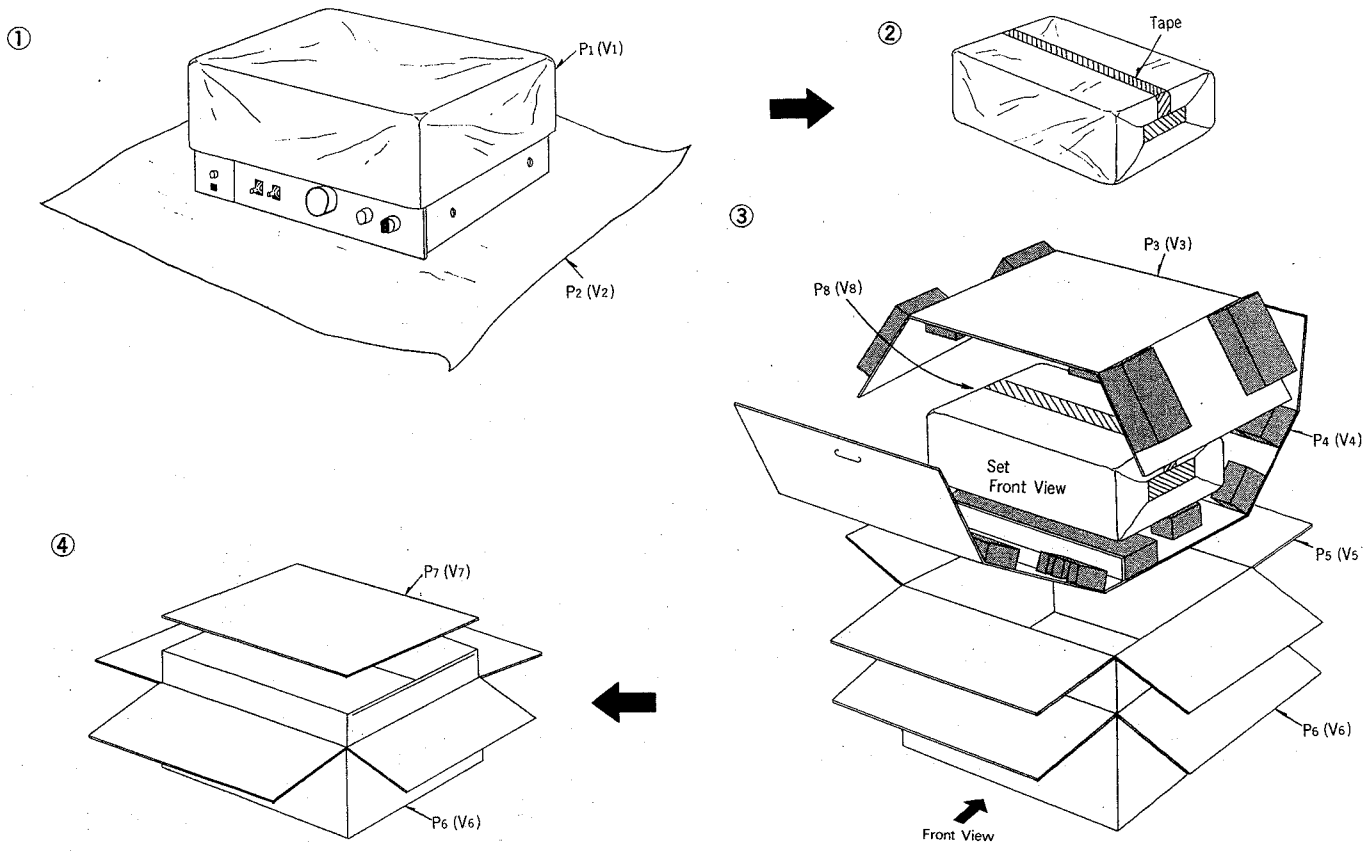
Ref. No. / Bezugs Nr.	Part No. / Teil Nr.	Description / Bezeichnung	Per Set (Pcs.) / Stückzahl pro Gerät	Remarks / Bemerkungen
CH4	SDTA5531S	Tuning Shaft	1	Ⓝ A
	RDD47-3S	Drum	1	B
	RDS4090A	Spring, Dial Cord	1	A
	RDZ05-5	Dial Cord (49-1/16")	125cm	B
	RDR20	Pulley	3	C
	RDR21	Pulley	1	C
	RJV201	Holder, Dial & Meter Light	8	C
	SJFA203	Holder, Fuse	1	Ⓝ B
	SNEA907	Fastener	2	C
	XXAR3H6S	Screw, Drum M'tg.	2	C
	XSN3D8S	Screw, Panel & Meter M'tg.	2	C
	XTV3D6C	Screw, Panel & Meter M'tg.	1	C
	XSB3+6KS	Screw, Panel M'tg.	3	C
ACCESSORIES / ZUBEHOR				
A1 (Z1)	SSAA1	FM Antenna Cord	1	B
A2 (Z2)	SJPA2129	Connector Cord	1	B
A3	SJP15S	Plug	1	B
A4	RJP74	Plug	1	B
A5	RJP75	Plug	1	B
PACKINGS / VERPACKUNG				
P1 (V1)	SPPA16-1	Soft Cover	1	C
P2 (V2)	SPHA6004	Polyethylene Sheet	1	C
P3 (V3)	SPNA155	Inside Carton	1	Ⓝ C
P4 (V4)	SPNA151	Inside Carton	1	Ⓝ C
P5 (V5)	SPNA168	Carton Box (Inner)	1	Ⓝ C
P6 (V6)	SPGA78	Carton Box (Outer)	1	Ⓝ C
P7 (V7)	SPNA139	Top Board (Carton Box)	1	Ⓝ C
P8	SQFA86	Printed Matter	1	Ⓝ B
(V8)	SQFA87	Druckschriften	1	Ⓝ B

■ ACCESSORIES ■ ZUBEHÖR



■ PACKING PARTS LOCATION ■ PACKANORDNUNG



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